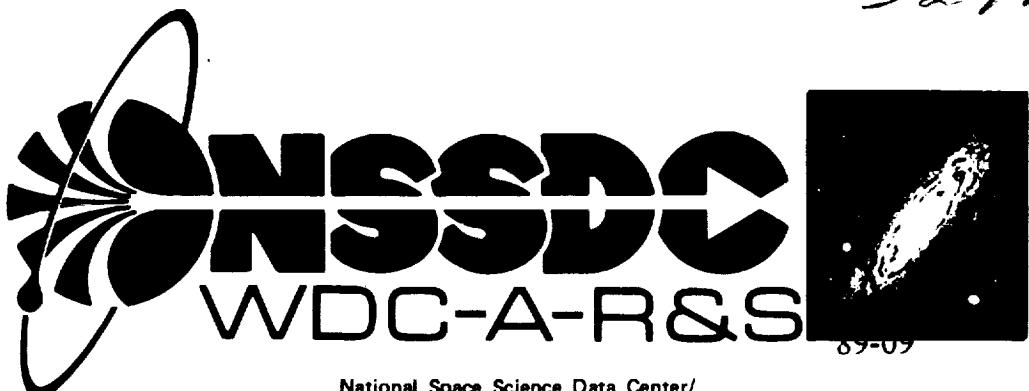


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National Space Science Data Center/  
World Data Center A For Rockets and Satellites

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## ***SECOND CATALOG OF INTERFEROMETRIC MEASUREMENTS OF BINARY STARS***

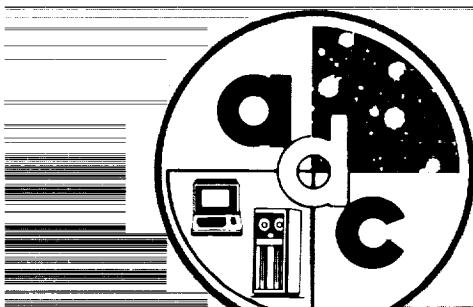
---

**(McAlister and Hartkopf 1988)**

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**Documentation for the Machine-Readable Version**

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June 1989

(NASA-TM-105065) SECOND CATALOG OF  
INTERFEROMETRIC MEASUREMENTS OF BINARY STARS  
(MCALISTER AND HARTKOPF 1988): DOCUMENTATION  
FOR THE MACHINE-READABLE VERSION (NASA)

39 p

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0032998



***SECOND CATALOG OF INTERFEROMETRIC  
MEASUREMENTS OF BINARY STARS  
(McAlister and Hartkopf 1988)***

**Documentation for the Machine-Readable Version**

Wayne H. Warren Jr.

June 1989

National Space Science Data Center (NSSDC)/  
World Data Center A for Rockets and Satellites (WDC-A-R&S)  
National Aeronautics and Space Administration  
Goddard Space Flight Center  
Greenbelt, Maryland 20771



## **Abstract**

The machine-readable version of the catalog, as it is currently being distributed from the Astronomical Data Center, is described. The catalog is a compilation of measurements of binary- and multiple-star systems obtained by speckle interferometric techniques; this version supersedes a previous edition of the catalog published in 1985. Stars that have been examined for multiplicity with negative results are included, in which case upper limits for the separations are given. The second version is expanded from the first in that a file of newly resolved systems and six cross-index files of alternate designations are included. The data file contains alternate identifications for the observed systems, epochs of observation, reported errors in position angles and separations, and bibliographical references.

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ALL INFORMATION CONTAINED  
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# 1.0 Introduction

## 1.1 Description

The *Second Catalog of Interferometric Measurements of Binary Stars* (McAlister and Hartkopf 1988) is an updated and expanded version of the first edition of the catalog (McAlister and Hartkopf 1985). It contains all measurements (known to the compilers) of binary- and multiple-star systems obtained by speckle interferometric techniques and in print or in press before October 1988. In addition to actual separation and position-angle measurements, the compilers include stars that have been examined for multiplicity with negative results, in which case upper limits for separation are given if they were included in a publication.

Although the primary data of the catalog are observed separations and position angles, their errors, epochs of measurement, and bibliographical references, ancillary data such as alternate identifications, notes, a list of systems first resolved by interferometry, and a set of cross-index files arranged by various major catalog designations, are included. The main data file uses designations from the *Washington Catalog of Visual Double Stars* that is maintained at the U. S. Naval Observatory by Charles E. Worley.

This document describes the machine-readable version of the *Second Catalog of Interferometric Measurements of Binary Stars* as it is currently being distributed from the Astronomical Data Center (ADC). It is intended to enable users to read and process the computerized catalog without problems and guesswork and it should be used only to supplement the information contained in the published catalog and the introduction to the machine version. Since there are several important formatting differences between the published and machine-readable tables, users of the machine version are encouraged to carefully study the data descriptions in the following sections of this document before using and interpreting the data. A copy of this document should be transmitted to any recipient of the machine-readable catalog originating from the ADC.

## 1.2 Source Reference

McAlister, H. A. and Hartkopf, W. I. 1988, *Second Catalog of Interferometric Measurements of Binary Stars*, Version 1988 October (see Center for High Angular Resolution Astronomy, Georgia State University, *CHARA Contribution No. 2*).



## 2.0 Structure

### 2.1 File Summary

The machine version of the *Second Catalog of Interferometric Measurements of Binary Stars* consists of 11 files. Table 1 gives the machine-independent file attributes. All logical records are of fixed length, and, if the catalog is received on magnetic tape, it will contain blocks of fixed length (as noted below), except that the last block of each file may be short. The second file contains the basic data of the catalog, while succeeding ones contain textual information and cross-index tables to facilitate the use of the catalog data. The data file is in a multiple-record format per object in order to allow all known observations of a star to be reported. However, all records are uniform in that they contain the same ancillary information and differ only by the primary data of multiple observations. Thus, the records can be sorted fully by any of the data fields.

Second Catalog of Interferometric Measurements of Binary Stars (McAlister and Hartkopf 1988)				
File	Contents	Record Format	Logical Record Length	Total Number of Logical Records
1	Introduction	FB	80	222
2	Data	FB	98	12326
3	Newly Resolved	FB	105	290
4	Notes	FB	80	968
5	Bibliography	FB	80	119
6	HR-HD-WDS	FB	22	1778
7	DM-HD-WDS	FB	33	3152
8	SAO-HD-WDS	FB	26	3076
9	ADS-HD-WDS	FB	25	1191
10	Const-HD-WDS	FB	33	876
11	Disc-HD-WDS	FB	33	1710

Table 1. Summary Description of Catalog Files: FB = Fixed length blocks (last may be short)

The information contained in the above table is sufficient for a user to describe the indigenous characteristics of the machine-readable version of the *Second Catalog of Interferometric Measurements of Binary Stars* to a computer. Information easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, density, number of tracks, and character coding (ASCII, EBCDIC) for tapes is not included, but should always accompany secondary copies if any are supplied to other users or installations.

## ***2.2 Introduction (File 1 of 11)***

This file is composed of straight text and contains the introduction to the published catalog. Statistics of the catalog and a basic description of the data are given, but neither column-by-column nor byte-by-byte descriptions of the various tables are included in the authors' introduction; thus, they are given in this document.

Byte(s)	Fortran Format	Data
1-80	A80	Mixed case text

**Table 2. Introductory File Record Format**

## ***2.3 Catalog (File 2 of 11)***

This file contains the compilation of observational data for the double and multiple systems included in the catalog.

As mentioned in "File Summary" on page 3, the data file may contain more than one logical record per object if multiple values of reported data exist. When a particular observation produced a negative result (undetected duplicity), only an upper limit is reported. In these cases, the position angle (PA) field is blank. These cases can always be detected by looking for an upper limit character (<) before the separation. It is important to do this if the PA field is being read with a real format specification, since it is possible for a measured PA to be zero.

Table 3 gives a byte-by-byte description of the contents of the data file. A suggested Fortran format specification for reading each data field is included and can be modified depending upon individual programming and processing requirements (Fortran 77 character string-type formats are used); however, caution is advised when substituting format specifications, since many data fields contain character data and others are blank when data are absent. As mentioned above, particular care is required for the PA field, where valid zero values can exist, but where fields are blank for nonexistent data. It is safest to buffer in records in an unformatted mode or read them with character (A) formats and test for blank data fields before processing with numerical formats for calculations and/or searching purposes. For such fields, primary numerical format specifications are given to indicate decimal-point locations, while alternate A-type formats are specified in parentheses. Default (null) values are always blanks in data fields for which primary suggested formats are given as A. Also note that extra spaces have been left in certain fields to allow for increased measurement accuracy (and thus greater precision) in future editions of the catalog.

Byte(s)	Units	Suggested Format	Default Value	Data
1-10	---	A10	---	WDS designation
11-12	---	2X	---	Blank
13-26	---	A14	---	Alternate identifier
27	---	1X	---	Blank
28-41	---	A14	---	Alternate identifier
42	---	1X	---	Blank
43-48	---	I6 (A6)	blank	HD number
49-51	---	A3	---	HD suffix
52	---	1X	---	Blank
53-61	years	F9.4	---	Epoch of observation
62-64	---	3X	---	Blank
65-69	°	F5.1 (A5)	blank	Position angle (PA)
70	---	1X	---	Blank
71	---	A1	---	PA uncertainty flag (:)
72	---	A1	---	Lower limit character (>) for PA error
73-75	°	F3.1 (A3)	blank	Error in PA
76-78	---	3X	---	Blank
79	---	A1	---	Upper limit character (<) for separation
80-84	°	F5.3	---	Separation
85	---	1X	---	Blank
86	---	A1	---	Separation uncertainty flag (: or ?)
87	---	A1	---	Lower limit character (>) for separation error
88-92	°	F5.3 (A5)	blank	Error in separation
93-94	---	2X	---	Blank
95-97	---	A3	---	Bibliographical code
98	---	1X	---	Blank

Table 3. Data File Record Format

<b>WDS designation</b>	System designation in the <i>Washington Catalog of Visual Double Stars</i> of C. E. Worley.
<b>Alternate identifier</b>	Identifier in a major catalog (HR, DM, ADS).
<b>Alternate identifier</b>	Identifier in a secondary catalog or list, or star name in some cases.
<b>HD number</b>	Numerical designation in <i>The Henry Draper Catalogue</i> (Cannon and Pickering 1918-24) or in one of the HD extensions (Cannon 1924-36, Cannon and Walton Mayall 1949).
<b>HD suffix</b>	The inclusion of a second HD star in the system is indicated by a hyphen followed by the last digit of the adjacent HD star.
<b>Epoch of observation</b>	The reported epoch varies in precision depending upon the accuracy to which it was reported; thus, bytes following the decimal point may be blank.
<b>Position angle</b>	The reported position angle of the components (measured in the normal way, north through east) at the epoch of observation. Note that precision can vary (byte 69 may be blank).
<b>PA uncertainty code</b>	A colon (:) denotes an uncertain value.
<b>Lower limit character (PA error)</b>	The character ">" is present if the PA error following was reported as a lower limit.
<b>Error in PA</b>	The error is generally given to one decimal place, but the precision varies (byte 75 can be blank).

<b>Upper limit character (sep)</b>	The character "<" is present if the angular separation following was reported as an upper limit, i.e., a negative result above a reported threshold was given in the reference cited.
<b>Separation</b>	The reported angular separation between the components at the epoch of observation, or an upper limit to the separation. The precision can vary, with lower accuracy indicated by trailing blanks in the field.
<b>Separation uncertainty flag</b>	The following codes are used: : The observation is uncertain. ? The observation is questionable (very uncertain).
<b>Lower limit character (sep error)</b>	The character ">" is present if the separation error following was reported as a lower limit.
<b>Error in separation</b>	The error is generally given to three decimal places, but the precision can vary (trailing bytes blank).
<b>Bibliographical code</b>	A two- or three-character identification code for the reference cited in the bibliography file (5).

## 2.4 Newly Resolved Systems (File 3 of 11)

This file contains a listing of 280 newly resolved binaries. The content of the table is described in Section III (last paragraph) of the introductory file and need not be repeated here. Although the table is reasonably uniform in format, it has the nature of a free text file (with table captions and column headings) and, therefore, will not be described in detail in this document. Rather, a brief column description is given below to alert the user as to the contents of the table, since such a description is not given in the Introduction.

Column	Information Content
1	Discovery designation or bibliographical reference code.
2	<i>Bright Star Catalogue</i> (Hoffleit 1982) or DM number.
3	Name of star or binary system.
4	HD number.
5	SAO (SAO Staff 1966) number.
6	ADS (Aitken 1932) number.
7	Right ascension and declination (2000) (equivalent to WDS designation).
8	Visual magnitude.
9	Spectral classification.
10	Discovery separation (seconds of arc).
11	Binary type.

Table 4. Contents of Newly Resolved Systems File

## 2.5 Notes (File 4 of 11)

This file contains miscellaneous notes and additional information for the systems included in the catalog. Not all systems have corresponding notes, but no flags are included in the data file for those that do, so users should check for notes on all systems in which they are interested. This file also has a free text structure precluding a byte-by-byte description. The first record of a note group for a system contains the WDS designation in bytes 1-10, followed by an alternate designation

(name). Records for individual observations contain the reference epoch in bytes 6-14 and text in bytes 17-80. A general note is indicated by hyphens in bytes 6-14. Blank records separate system groups.

## 2.6 Bibliography (File 5 of 11)

This file contains the references cited by the codes in bytes 95-97 of the data file. Although the file contains a table caption and blank records, the format is uniform enough to be described in the following table. Columns not described are blank and continuation lines are indicated by blanks in bytes 1-7.

Byte(s)	Fortran Format	Data
2-4	A3	Reference code
6	A1	An equal (=) sign
8-80	A73	Reference in free text (upper and lower case) form

Table 5. Bibliography File Record Format

## 2.7 HR-HD-WDS Cross Index (File 6 of 11)

This file contains a cross index for designations in *The Bright Star Catalogue* (Hoffleit 1982), *The Henry Draper Catalogue* (Cannon and Pickering 1918-24, Cannon 1924-36, Cannon and Walton Mayall 1949), and the WDS. The file is ordered by HR = BS number and is uniform in format, as described in the following table.

Byte(s)	Fortran Format	Data
1-4	I4	HR = BS number
5	I1	Blank
6-11	I6	HD number
12	I1	Blank
13-22	A10	WDS designation

Table 6. HR-HD-WDS Cross Index Format

## 2.8 DM-HD-WDS Cross Index (File 7 of 11)

The file is a cross index of identifications from the *Durchmusterungen* (Bonner [Argelander 1859-62, Küstner 1903], Southern [Schönfeld 1886], Córdoba [Thome 1892-1932], or Cape Photographic [Gill and Kapteyn 1895-1900]), the HD, and the WDS. The file is ordered north to south by DM zone and in increasing right ascension within each zone. DM catalogs are identified by their two-letter abbreviations.

Byte(s)	Fortran Format	Data
1-2	A2	DM identifier (BD, SD, CD, CP)
3-5	I3 (A3)	DM zone
6	1X	Blank
7-11	I5 (A5)	DM number
12-14	3X	Blank
15-20	I6 (A6)	HD number
21-22	A2	HD suffix
23	1X	Blank
24-33	A10	WDS designation

Table 7. DM-HD-WDS Cross Index Format

## 2.9 SAO-HD-WDS Cross Index (File 8 of 11)

This file is a cross index of identifications from the *Smithsonian Astrophysical Observatory Star Catalog* (SAO Staff 1966), the HD, and the WDS. It is ordered by SAO number.

Byte(s)	Fortran Format	Data
1-6	I6	SAO number
7	1X	Blank
8-13	I6 (A6)	HD number
14-15	A2	HD suffix
16	1X	Blank
17-26	A10	WDS designation

Table 8. SAO-HD-WDS Cross Index Format

## 2.10 ADS-HD-WDS Cross Index (File 9 of 11)

This file is a cross index of identifications from the Aitken double-star catalog (ADS, Aitken 1932), the HD, and the WDS. It is ordered by increasing ADS number. In this and subsequent cross-index tables, the HD suffix occupies three bytes instead of two to accommodate one case where the HD numbers of two stars in a binary system are not consecutive (see item 4 in Section 3.1).

Byte(s)	Fortran Format	Data
1-5	I5	ADS number
6	1X	Blank
7-12	I6 (A6)	HD number
13-15	A3	HD suffix
16-25	A10	WDS designation

Table 9. ADS-HD-WDS Cross Index Format

## **2.11 Constellation-HD-WDS Cross Index (File 10 of 11)**

The file contains a cross index of commonly used star names (constellation identifiers) and their HD and WDS equivalents. Constellation designations include Greek letters (Bayer designations) and Arabic numerals (Flamsteed numbers), with the Bayer designation taking priority (most bright northern stars have both). Variable-star names are also included. The file is ordered by constellation abbreviation and by Greek letter and Flamsteed number order within each constellation.

Byte(s)	Fortran Format	Data
1-9	A9	Star name
10	1X	Blank
11-13	A3	Constellation abbreviation
14	1X	Blank
15-20	I6 (A6)	HD number
21-23	A3	HD suffix
24-33	A10	WDS designation

**Table 10. Constellation-HD-WDS Cross Index Format**

## **2.12 Discoverer-HD-WDS Cross Index (File 11 of 11)**

This file cross indexes the HD and WDS identifiers with discoverer designations, including various multiple-star identifiers, names from miscellaneous observers' lists, CHARA discovery numbers, etc. Most of these identifications can be found in the *First Dictionary of the Nomenclature of Celestial Objects* or its *Supplement* (Fernandez, Lortet, and Spite 1983; Lortet and Spite 1986).

Byte(s)	Fortran Format	Data
1-13	A13	Miscellaneous identifier
14	1X	Blank
15-20	I6 (A6)	HD number
21-23	A3	HD suffix
24-33	A10	WDS designation

**Table 11. Discoverer-HD-WDS Cross Index Format**



## 3.0 History

### 3.1 Remarks and Modifications

The machine-readable version of the *Second Catalog of Interferometric Measurements of Binary Stars* was received on magnetic tape from Drs. H. A. McAlister and W. I. Hartkopf of Georgia State University on November 8, 1988. Since the tape was in an ANSI labeled multifile format, the individual files were loaded onto the VAX 8650 computer of the National Space Science Data Center, then transferred via a local area network to the IBM 3081K machine of the NASA Space and Earth Sciences Computing Center at Goddard Space Flight Center, where the ADC archive is located, and where the expanded memory and powerful editing facilities of the IBM computer could be employed.

Following completion of the work on the previous edition of the catalog (McAlister and Hartkopf 1985), which was received as a single text file formatted for printing, close collaboration between the ADC and Dr. Hartkopf resulted in a list of suggestions for the structuring and formatting of the second (present) edition. Dr. Hartkopf followed these suggestions and produced the new catalog in a format that was very easy to work with and to prepare for distribution. The following minor modifications were made to the files indicated in order to make them easier to process by machine and to facilitate the use of the cross indexes:

1. Certain fields in the data file contained hyphens as fill characters where data were missing. These were replaced with blanks.
2. Durchmusterung identifier abbreviations (BD, SD, CD, CP) were added to the DM designations in the DM cross index file. This addition is important in the southern hemisphere, where CD and CP stars are mixed and it is laborious to identify the correct DM catalog without the abbreviations.
3. Blank records between constellation groups in the constellation cross index were removed in order that the file can be sorted properly by any identifier present, and to decrease storage.
4. There is one system (65 UMa) in some of the cross-index tables where the adjacent HD suffix notation does not work. This is because the bright components of 65 UMa are designated HD 103483 and HD 103498. Where these components were designated as a single entry in a cross indexed catalog, the higher designation was omitted. By using the notation "/98" as the HD suffix in the ADS, constellation, and discoverer cross indexes, it was possible to include the second designation in those tables.

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## **4.0 Acknowledgments and References**

### **4.1 Acknowledgments**

Appreciation is expressed to Drs. Hal McAlister and Bill Hartkopf for supplying the magnetic tape of the *Second Catalog of Interferometric Measurements of Binary Stars*. Dr. Hartkopf supplied annotated sample listings of the files and prepared the second edition of the catalog with great care. His work is sincerely appreciated because it saved the ADC a great amount of time in preparing the final catalog for archiving and dissemination. Drs. McAlister and Hartkopf also kindly reviewed a draft copy of this document and responded with their comments in a timely manner.

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## **Appendix A. Sample Listing**

The sample listing given on the following pages shows logical records exactly as they are recorded in the machine-readable version of the catalog. Groups of records from the beginning and end of each file are illustrated. The beginning of each record and the bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).



## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int\_ress\_Bin\_ Intro

Records 203 To 222

Data file 50

Record Length 80 bytes

Input VOLSER ADC006

Record 203 Table IX. S10-HD-WDS Cross Index - These numbers were taken from either the HD-SAO-DM Cross Index Nagy and Head, NASA Tech. Mem. No. 79564,  
 Record 204

REFERENCES

Record 205 1978) or from the SAO Catalog.  
 Record 206 Table X. Discover Designations (and miscellaneous names)-HD-WDS Cross Index  
 Record 207 . A variety of sources were used in compiling these names, including  
     the WDS, the Catalogue of Stars Within Twenty-five Parsecs of the  
     Sun (Woolley et al., Royal Obs. Annals No. 5, 1970), the Henry  
     Draper Extension (HDE), and the references listed in the primary  
     sources of the observations themselves.

## **Record 212 V. ACKNOWLEDGMENTS**

<sup>213</sup> We thank our colleagues in the various observing groups for ensuring that

214 we were aware of all their observational results. Dr. Wayne Warren and the

215 staff of the Astronomical Data Center at the NASA Goddard Space Flight Center

312 Catalogue without a title

Indeed the main Catalan itself would have been  
protection, because the same, and the same  
but

319 express our gratitude to Charles Hodson of the "S. W. M. S." for his services in this connection, which were extreme difficult.

220 advice and critical comments. Production of this Catalog was made possible by

part from support of the National Science Foundation and of the College of Arts

Record 222 and Sciences, Georgia State University.

## LISTING OF RECORDS FROM DATA FILE

Data File Name Test Mac Osx Win Data

卷之三

20 *Records*

E 1

卷之三

Record Length 98 bytes

Tennant v. U.S. 1800

Record	1	0 00004+2655	HR	9 078	+26	4727	224758	1986.8967	<0.030	C4
Record	2	0 00005+5934	HR	9 079	+58	2685	224784	1986.8967	<0.030	C4
Record	3	0 0007+4515	HR	9 080	+44	4538	224801	1986.8967	<0.030	C4
Record	4	0 00113+4959	HR	9 083	+49	4309	224870	1986.8967	<0.030	C4
Record	5	0 0016+6113	HR	9 085	+60	2657	224893	1986.8967	<0.030	C4
18 Record	6	0 0017+42222	HR	9 086	+41	4920	224906	1986.8967	<0.030	C4
Record	7	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1973.789	184.5	0.3
Record	8	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1974.650	194.0	0.3
Record	9	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1976.6138	213.8	0.777
Record	10	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1976.6165	219.9	0.764
Record	11	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1976.8596	218.9	0.3
Record	12	0 0020+2706	ADS	17175	Bu	7 33 AB	224930	1977.6350	225.3	0.772
Record	13	0 0020-0246	-03	5750			224945	1981.703	<0.030	X3
Record	14	0 0021-0250	-03	5751			224959	1985.4985	<0.030	C3
Record	15	0 0024+0857	HR	9 092	31	PSC	224995	1986.8966	<0.030	C4
Record	16	0 0025+0829	HR	9 093	32	PSC	225003	1986.8966	<0.030	C4
Record	17	0 0034+6339	HR	9 097	CHARA	121	225094	1986.8967	34.4	0.196
Record	18	0 0042+6217	HR	9 100	9	Cas	225180	1986.8967	<0.030	C4
Record	19	0 0046+3416	ADS	32	STR	3056 AB	225220	1977.797	143.	1.
Record	20	0 0046+3416	ADS	32	STR	3056 AB	225220	1983.7104	144.	1.

## LISTING OF RECORDS FROM DATA FILE

## LISTING OF RECORDS FROM DATAFILE

Data File Name: Ent. fees. Bind.; New les.

Records 1 To 30

Data Table 62

Record Length 105 Unit

Trans. Nonferrous Met.

TABLE III. Binary Stars First Resolved by Interferometry

Record	1	TABLE III. Binary Stars First Resolved by Interferometry										
Record	2	Disc.	HR/DM	Name	HD	SAO	ADS	RA, Dec	V	Spectral	Disc.	Binary
Record	3	Number	Number		Number	Number	Number	(2000)	Mag	Classif.	Sep.	Type
Record	4											
Record	5											
Record	6	CHARA 121	HR 9097		225094	10942	00034+6339	6.2 B3Iae	0.196	BS		
Record	7	CHARA 122	Aa HR 9105		225218	36037	30 00046+4206	6.0 B9III	0.110	BS		
Record	8	CHARA 1 Aa	+52 0019		761	21202	148 00122+5337	7.0 F0	0.403			
Record	9	CHARA 123	HR 63	Theta And	1280	53777	00171+3841	4.6 A2V	0.057	BS		
Record	10	MCA 1 Aa	HR 132	51 Pso	2913	109262	449 00323+0657	5.7 B9.5V	0.271	Ocen		
Record	11	MCA 2	HR 233		4775	11424	00507+6415	5.4 B9.5V+G0III-	0.045	Spn, SB		
Record	12	CHARA 2	+83 0020		5621	171	01037+8436	6.7 F5V	0.139	Spn		
Record	13	CHARA 3	+67 0131		9015	11787	01308+6722	9.2 K0	0.247			
Record	14	MCA 3	HR 439		9352	22389	01334+5820	5.7 K0Ib+B9V	0.133	Spn		
Record	15	CHARA 4 Aa	HR 526		11031	37536	1438 01492+4754	5.8 A3V	0.141	SB		
Record	16	F7	HR 539	Zeta Cet	11353	148059	01514-1020	3.7 K0III	0.055	SB		
Record	17	MCA 4	+08 0316		12483	110295	02026+0905	7.8 G5IV	0.224	Ocen		
Record	18	MCA 5	HR 649	X1 1 Cet	13611	110408	02130-0851	4.4 G6II-IIICN	0.056	SB, Ocen		
Record	19	CHARA 5	HR 643	60 And	13520	37867	02132+4414	4.8 K3.5IIIba0.5	0.187	SB		
Record	20	F8	HR 645	6 Per	13530	23047	02134-5106	5.3 G8III	0.040	SB		

## LISTING OF RECORDS FROM DATA FILE

Date File Name: Int. Meas. Inv. No. Rec.

Records 271 T0 290

Data Title

Bacterioplankton 10E Wt/ed

Tunisian Volts per Indollar

Record	271	CHARA 114	HR 8617		214558	52211	6.4	G2III+A4V	0.114	BS
Record	272	McA 72	+80 0731		215319	3769	6.9	F8+A5V	0.170	Spn
Record	273	F3		HR 8650	Eta Per	215182	90734	22394+8123	2.9	G2II+FOV
Record	274	B6	-12 6343		215555	165283	22430+3013	2.9	G2II+FOV	
Record	275	CHARA 115	HR 8690	14 Lac	216200	52412	22504+4157	5.9	B3IV:e	
Record	276	McA 73	HR 8704	74 Aqr	216494	165359	22535-1137	5.8	B9III	
	277	CHARA 116	HR 8734		217107	146412	22583-0224	6.2	G8IV	
Record	278	McA 77 AB		Omicron And	217675	52609	23019+4219	3.6	B6III+pe+A2p	
Record	279	F3		HR 8762	Omicron And	217675	52609	23019+4219	3.6	B6III+A2
Record	280	CHARA 141	+00 4982		219420	128069	23157+0119	6.8	F5	
Record	281	McA 74 Aa	HR 8866	94 Aqr	219834	165624	23191-1327	5.1	G5IV	
Record	282	CHARA 120 Aa	+57 2787		222794	35706	23434+5804	7.1	G0	
Record	283	McA 75 Aab	HR 9003	Psi And	223047	53355	23460+4625	4.9	G5Ib+A0V	
Record	284	McA 75 Aao	HR 9003	Psi And	223047	53355	23460+4625	4.9	G5Ib+A0V	
Record	285	McA 76		Psi Peg	224427	91611	23578+2508	4.7	M3III+	

Record	287	<b>Binary Type:</b>	Astn	= astrometric binary	Oon	= occultation binary
Record	288		BS	= bright star survey object	Pleiad	= Pleiades cluster member
Record	289		Halo	= halo population system	SB	= spectroscopic binary
Record	290		Hyad	= Hyades cluster member	Spm	= spectrum binary

## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int. Meas.: Fin.: Notes:

Records 1 To 20

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הנִזְקָנָה

માનવસત્તુ

H E A D I N G 111111111222222222333333334444445555556666667777777888888889999999900000000011111  
I N D E X 123456789012345678901234567890123456789012345678901234567890123456789012345

1 Notes to the Second Catalog of Interferometric Measurements of Binary Stars

2 Notes from other papers are followed by the paper code in parentheses

## Record

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22

record 6 position angle.

### **Record**

Record # 8 0017340852 = 108 238

2

INDEX

Record

### **Record**

10

РЕДАКТОР

### **Record**

Record

25

REVIEW

**Record**

### **Record**

## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int. Meas. Rep. - Notes

Bogardus 263

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ବ୍ୟାକିଳା ପଦ

Input VOLSER ADC006

Hollister and Hartkamp (1982) 158  
949

**1977** 6350 7442 37000 10000 10000

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הנְּבָאָה בְּכָאָה

MEDICAL 953

Record 954

Record 955

Report of the Secretary of State for Foreign Affairs

תְּמִימָנָה וְעַמְלָה בְּבֵית-הַמִּזְבֵּחַ כְּסֵדֶל

(1366) Urantia, page 51, 1/3 quotes = 198.6 yr., while

fel·nyuk-Adanchuk (1966 vissn. Kieu Univ.: 7, Ser. ASTR.: 129)

The observed theta and rho are in reasonable agreement.

agreement with our hypothesis.

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Record	964	1377.9133	This measure was Omitted in A6.
Record	965		
Record	966	23460+4625 = MoA 75 Aao	
Record	967	-----	It is not established whether this third component belongs to Aa or Ab.
Record	968		

## LISTING OF RECORDS FROM DATA FILE

**Data File Name:** Int. Meas. Bin., Refs  
**Records** 1 To 20  
**Data File** 54  
**Record Length** 80 bytes  
**Input VOLSER** ADC006

TABLE II. Bibliographic References

Record	1 TABLE II. Bibliographic References
Record	2
Record	3 A1 = McAllister, H.A. 1977, <i>Astrophys. J.</i> 215, 159.
Record	4 A2 = McAllister, H.A. 1978, <i>Astrophys. J.</i> 225, 932.
Record	5 A3 = McAllister, H.A. and DeGioia, K.A. 1979, <i>Astrophys. J.</i> 228, 493.
24 Record	6 A4 = McAllister, H.A. 1979, <i>Astrophys. J.</i> 230, 497.
Record	7 A5 = McAllister, H.A. and Rekel, F.C. 1980, <i>Astrophys. J. Suppl.</i> 43, 327.
Record	8 A6 = McAllister, H.A. and Hendry, E.M. 1982, <i>Astrophys. J. Suppl.</i> 48, 273.
Record	9 A7 = McAllister, H.A. and Hendry, E.M. 1982, <i>Astrophys. J. Suppl.</i> 49, 267.
Record	10 A8 = McAllister, H.A., Hendry, E.M., Hartkopf, W.I., Campbell, B.G., and Rekel, F.C. 1983, <i>Astrophys. J. Suppl.</i> 51, 309.
Record	11 A9 = McAllister, H.A., Hartkopf, W.I., Hendry, E.M., Gaston, B.J., and Rekel, F.C. 1984, <i>Astrophys. J. Suppl.</i> 54, 251.
Record	14 A10 = McAllister, H.A. and Hartkopf, W.I. 1984, Catalog of Interferometric Measurements of Binary Stars, CHARA Contribution No. 1 (Previously unpublished KPNO 2.1-m observations).
Record	15
Record	16
Record	17 A11 = McAllister, H.A. 1978, <i>Astrophys. J.</i> 223, 526.
Record	18
Record	19 B1 = Morgan, B.L., Beddoes, D.R., Scaddan, R.J. and Dainty, J.C. 1978, M.N.R.A.S. 183, 701.
Record	20

## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int Meas Run - Ref

MECHANICAL PROPERTIES

Data file 54

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Input VOLSER ADC006

COLUNA  
HEADINGS  
INDEX

Record 100 R12 = Tokovinin, A.A. 1985, *Astron. Astrophys.* Suppl. 61, 483.

Record 101 R13 = Dudingov, V.N., Kuz'menkov, S.G., Konichek, V.V., Tsvetkova, V.S., Rylov, V.S., and Frokhin, V.M. 1986, *Soviet Astron.* 30, 359.

Record 102 R14 = Balega, Yu.Yu. 1988, private communication.

Record 103 R15 = Balega, I.I. and Balega, Yu.Yu. 1987, *Soviet Astron. Lett.* 13, no. 3.

Record 104 R16 = Tokovinin, A.A. and Ismailov, R.M. 1988, *Astron. Astrophys.* Suppl. 72, 563.

Record 105 R17 = Schmidt, G.D., Angel, J.R.P., and Harns, R. 1977, *Pub. A.S.P.* 89, 410.

Record 106 R18 = Cocke, W.J., Hege, E.K., Hubbard, E.N., Strittmatter, P.A., and Morden, S.P. 1981, I.A.U. Colloquium No. 62: Current Techniques in Double and Multiple Star Research, R.S. Harrington and O.G. Franz, eds. Lowell Observatory Bulletin No. 167, Vol. 9, No. 1, p. 159.

Record 107 R19 = Hege, E.K., Hubbard, E.N., Cooke, W.J., Strittmatter, P.A., Morden, S.P., and Radick, R.R. 1981, I.A.U. Colloquium No. 62: Current Techniques in Double and Multiple Star Research, R.S. Harrington and O.G. Franz, eds. Lowell Observatory Bulletin No. 167, Vol. 9, No. 1, p. 185.

Record 108 R20 = Anderson, J.A. 1920, *Astrophys. J.* 51, 263.

Record 109 R21 = Merrill, P.W. 1922, *Astrophys. J.* 56, 43.

## LISTING OF RECORDS FROM DATA FILE

Record	1	1	3	00052+4514
Record	2	4	87	00057+1324
Record	3	5	123	00062+5826
Record	4	7	144	00064+6412
Record	5	8	166	00066+2901
Record	6	15	358	00084+2905
Record	7	17	400	00087+3638
Record	8	19	417	00089+2528
Record	9	20	431	00091+7943
Record	10	21	432	00092+5909
Record	11	26	560	00100+1109
Record	12	27	571	00103+4604
Record	13	28	584	00105+5710
Record	14	32	661	00106-7314
Record	15	36	743	00120+4809
Record	16	38	829	00128+3742
Record	17	39	886	00132+1511
Record	18	40	895	00134+2659
Record	19	41	905	00135+4102
Record	20	44	952	00140+3312

## LISTING OF RECORDS FROM DATA FILE

Data File Xname: Int. Meas. Bin.: HR CT

Bacovides 1759 to 1778

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Data File 55

Record Length 32 bytes

Travut VOI STEP 1 DEC 06

Record	1759	9032	223647	23521-8201
Record	1760	9038	223778	23523+7533
Record	1761	9041	223825	23529-0313
Record	1762	9061	224362	23575-8210
Record	1763	9064	224427	23578+2508
Record	1764	9071	224572	23589+5545
Record	1765	9078	224758	00004+2655
Record	1766	9079	224784	00005+5934
Record	1767	9080	224801	00007+4515
Record	1768	9083	224870	00013+4959
Record	1769	9085	224893	00016+6113
Record	1770	9086	224906	00017+4222
Record	1771	9088	224930	00020+2706
Record	1772	9092	224995	00024+0857
Record	1773	9093	225003	00025+0829
Record	1774	9097	225094	00034+6339
Record	1775	9100	225180	00042+6217
Record	1776	9105	225218	00046+4206
Record	1777	9109	225276	00049+2639
Record	1778	9110	225289	00051+6119

## LISTING OF RECORDS FROM DATAFILE

## LISTING OF RECORDS FROM DATAFILE

## LISTING OF RECORDS FROM DATA FILE

data File Name: Int. Meas. Bin - S10 ET

Records 1 To 30

Data File 57

Record Length 26 bytes

Input VOISER AND 006

Record	1	22	245	00085+8647
Record	2	171	5621	01037+8436
Record	3	308	8890	02316+8916
Record	4	550	20084	03323+8455
Record	5	650	25007-8	04101+8042
Record	6	1701	89571	10297+8415
Record	7	1714	90089	10311+8234
Record	8	1735	91075	10360+8030
Record	9	2459	133002	14503+8231
Record	10	2559	140625	15254+8431
Record	11	2975	167101	17530+8354
Record	12	3243	187216	19243+8522
Record	13	3294	191079	19418+8552
Record	14	3694	210979	22062+8240
Record	15	3769	215319	22394+8123
Record	16	3830	217992	23013+8046
Record	17	4048	431	00091+7943
Record	18	4071	1141	00163+7657
Record	19	4079	1360	00182+7256
Record	20	4127	2520	00300+7515

## **LISTING OF RECORDS FROM DATAFILE**

Data File Name: Int. Meas. Bnd.: S10 CT

Records 3057 To 3076

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Record length 36 bits

Inuit voices

Record	3057	246929	202103	21158-5316
Record	3058	247244	208450	21579-5500
Record	3059	247287	209100	22034-5647
Record	3060	247593	215789	22486-5119
Record	3061	248202	2885	00316-6258
Record	3062	248770	20766	03178-6235
Record	3063	248774	20807	03178-6231
Record	3064	248877	23817	03442-6448
Record	3065	249926	62964	07416-6741
Record	3066	249941	63406	07440-6712
Record	3067	254226	168339	18232-6130
Record	3068	254515	179366	19172-6640
Record	3069	254609	184356	19382-6355
Record	3070	255193	211416	22185-6016
Record	3071	255642	661-2	00106-7314
Record	3072	256316	48386	06348-7513
Record	3073	257377	145308	16189-7709
Record	3074	257948	205478	21415-7723
Record	3075	258989	223647	23521-8201
Record	3076	258996	224362	23575-8210

## LISTING OF RECORDS FROM DATA FILE

## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int\_Heas\_Bin\_1.DSS CT

Records 1173 T9 1191

Data File 58

Record Length 35 bytes

Impôt votatif ABC 996

Record 1173 16858 221925 33363-0707

Record 1173 16873 323068 3337440737

Record 1174 16877 332109 33375+H436

Record 1175 16904 222326 2339244543

Record 1176 16928 322529 33413+3334

Record 1177 16995 223139 23470+0515

Record : 1178 17019 223331 23485+3617

Record 1179 17020 223358 23486+6453

Record 1180 17030 323486 3349842740

Record 1181 17036 23505411203

Record 1182 17039 23 Feb 11/70 E

Record 1183 17050 2233672 23E1641120E

1118// 170E2 2222688 22E17-0627

1185 17062 223778 225227522

1186 17106 221318 2256132222

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1188 17118 2261385 2253300 2251

1180 17160 324572 22580 5515

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1101 17175 00/020





## LISTING OF RECORDS FROM DATA FILE

Data File Name: Int. Meas. Bin.: Dsg CI

Records 1 to 30

Data File 60

Beccardianathus 33 Burton

Transit volunteers 18000

Legend 111-0616

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16384-0312

13004 / 131

0180-1 / hsl / h9981

00321-0511  
2880

38068 05436+1259

40628 0601342927

48591 06455+2922

126126 14220+5107

183458 19288+2304

184739 19351+2328

225 h + 42205942

22301+4625

32589#H617

217712 23030411800

2005-18106

36

## LISTING OF RECORDS FROM DATAFILE

